

AMENDMENTS TO THE CLAIMS

Kindly amend the claims as follows:

1 – 2. (cancelled)

3. (currently amended) A method for correlating behavior between two elements of a system to determine the presence of mutual interaction between the elements, the method comprising:

measuring the behavior of two elements of a system over time with respect to mutual interaction, thereby producing two behavior functions;

expressing a plurality of constraints on a theoretical distance c between said behavior functions; and

determining that said elements are behaving as mutually interacting elements where there exists an actual distance c that satisfies said constraints. ~~A method according to claim 1~~ wherein said expressing step comprises expressing each of said constraints using at least two time-consecutive samples (a_n, a_{n+1}) of one of said functions and at least one sample (b_n) of the other of said functions that is time-intermediate said time-consecutive samples.

4. (original) A method according to claim 3 wherein said expressing step comprises expressing each of said constraints as $(a_n - b_n) \leq c \leq (a_{n+1} - b_n)$.

5. (currently amended) A method for correlating behavior between two elements of a system to determine the presence of mutual interaction between the elements, the method comprising:

measuring the behavior of two elements of a system over time with respect to mutual interaction, thereby producing two behavior functions;

expressing a plurality of constraints on a theoretical distance c between said behavior functions; and

determining that said elements are behaving as mutually interacting elements where there exists an actual distance c that satisfies said constraints. ~~A method according to claim 1~~ wherein said expressing step comprises expressing each of said distances using at least two time-consecutive samples (a_n, a_{n+1}) of one of said functions and at least one sample (b_n) of the other of said functions that is taken at the same time as one of said time-consecutive samples.

6. (original) A method according to claim 5 wherein said expressing step comprises expressing each of said constraints as $(a_n - b_n) \leq c \leq (a_{n+1} - b_n)$.

7 – 8. (cancelled)

9. (currently amended) A method for correlating behavior between two elements of a system to determine the presence of mutual interaction between the elements, the method comprising:

measuring the behavior of two elements of a system over time with respect to mutual interaction, thereby producing two behavior functions;

expressing a plurality of constraints for a plurality of theoretical distances c_i between said behavior functions; and

determining that said elements are behaving as mutually interacting elements where there exists a plurality of actual distances c_i that satisfies said constraints. ~~A method according to claim 7~~ wherein said expressing step comprises:

expressing each of said constraints using a plurality of samples a_n of one of said functions taken at times a'_1, a'_2, \dots, a'_n , a first plurality of time-consecutive samples b_n and a second plurality of time-consecutive samples b'_n of the other of said functions taken at times b'_1, b'_2, \dots, b'_n , wherein $a'_1 \leq b'_1 \leq a'_2 \leq b'_2 \leq \dots a'_n \leq b'_n$; and

selecting each of said constraints from of a set of constraints defined by the pattern:

$$a_1 - b_1 \leq c_1 \leq a_2 - b_1$$

$$a_2 - b_2 \leq c_2 \leq \min(a_2 - b_1 + P(b'_2 - b'_1), a_3 - b_2)$$

$$a_3 - b_3 \leq c_3 \leq \min(a_2 - b_1 + P(b'_3 - b'_1), a_3 - b_2 + P(b'_3 - b'_2), a_4 - b_3).$$

10 - 11. (cancelled)

12. (currently amended) Apparatus for correlating behavior between two elements of a system to determine the presence of mutual interaction between the elements, the apparatus comprising:

_____ means for measuring the behavior of two elements of a system over time with respect to mutual interaction, thereby producing two behavior functions;

_____ means for expressing a plurality of constraints on a theoretical distance c between said behavior functions; and

_____ means for determining that said elements are behaving as mutually interacting elements where there exists an actual distance c that satisfies said constraints, Apparatus according to claim 10 wherein said expressing means comprises means for expressing each of said constraints using at least two time-consecutive samples (a_n, a_{n+1}) of one of said functions and at least one sample (b_n) of the other of said functions that is time-intermediate said time-consecutive samples.

13. (original) Apparatus according to claim 12 wherein said expressing means comprises means for expressing each of said constraints as $(a_n - b_n) \leq c \leq (a_{n+1} - b_n)$.

14. (currently amended) Apparatus for correlating behavior between two elements of a system to determine the presence of mutual interaction between the elements, the apparatus comprising:

_____ means for measuring the behavior of two elements of a system over time with respect to mutual interaction, thereby producing two behavior functions;

_____ means for expressing a plurality of constraints on a theoretical distance c between said behavior functions; and

_____ means for determining that said elements are behaving as mutually interacting elements where there exists an actual distance c that satisfies said constraints, Apparatus

~~according to claim 10~~ wherein said expressing means comprises means for expressing each of said distances using at least two time-consecutive samples (a_n, a_{n+1}) of one of said functions and at least one sample (b_n) of the other of said functions that is taken at the same time as one of said time-consecutive samples.

15. (original) Apparatus according to claim 14 wherein said expressing means comprises means for expressing each of said constraints as $(a_n - b_n) \leq c \leq (a_{n+1} - b_n)$.

16 – 17. (cancelled)

18. (currently amended) Apparatus for correlating behavior between two elements of a system to determine the presence of mutual interaction between the elements, the apparatus comprising:

means for measuring the behavior of two elements of a system over time with respect to mutual interaction, thereby producing two behavior functions;

means for expressing a plurality of constraints for a plurality of theoretical distances c_i between said behavior functions; and

means for determining that said elements are behaving as mutually interacting elements where there exists a plurality of actual distances c_i that satisfies said constraints.

~~Apparatus according to claim 16~~ wherein said expressing means comprises:

means for expressing each of said constraints using a plurality of samples a_n of one of said functions taken at times a'_1, a'_2, \dots, a'_n , a first plurality of time-consecutive samples b_n and a second plurality of time-consecutive samples b'_n of the other of said functions taken at times b'_1, b'_2, \dots, b'_n , wherein $a'_1 \leq b'_1 \leq a'_2 \leq b'_2 \leq \dots, a'_n \leq b'_n$; and

means for selecting each of said constraints from of a set of constraints defined by the pattern:

$$a_1 - b_1 \leq c_1 \leq a_2 - b_1$$

$$a_2 - b_2 \leq c_2 \leq \min(a_2 - b_1 + P(b'_2 - b'_1), a_3 - b_2)$$

$$a_3 - b_3 \leq c_3 \leq \min(a_2 - b_1 + P(b'_3 - b'_1), a_3 - b_2 + P(b'_3 - b'_2), a_4 - b_3).$$